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Patent claims

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1. A method for the air conditioning of a vehicle interior as a function of incident solar radiation, with the steps:

10 detection of the incident solar radiation in different solid angle ranges by means of a plurality of sensor elements,

determination of an air conditioning capacity of at least two air conditioning ducts of individually controllable air conditioning

15 capacity for the air conditioning of different vehicle interior regions, the air conditioning capacity of an air conditioning duct being determined, in addition to taking into account an actual interior temperature, a desired interior

20 temperature, an outside temperature and, optionally, a vehicle speed, as a function of an output signal from a sensor element assigned to this air conditioning duct or of an averaged

output signal from a sensor element assigned to this air conditioning duct,

25 characterized by the further steps: calculation of a sunlight steepness according to the following formula

$$S = ((|A2 - A3| + |A1 - A4|) / 2 * M / \bar{A},$$

30 S being the sunlight steepness, A2 the output signal from a second sensor element, A3 the output signal from a third sensor element, A1 the output signal from a first sensor element, A4 the output

signal from a fourth sensor element, M a multiplier and \bar{A} the arithmetic average value of

35 the output signals A1 to A4 from the first to fourth sensor elements,

determination of a correction factor with the aid
of the calculated sunlight steepness,
determination of a corrected air conditioning
capacity by the multiplication of the determined
5 air conditioning capacity by the correction
factor,
setting of the corrected air conditioning
capacity.

10 2. A method for the air conditioning of a vehicle
interior as a function of incidence of solar
radiation as claimed in claim 1, characterized in
that the correction factor is determined as a
function of the calculated sunlight steepness in a
15 vehicle-dependent manner during measurements.

3. A method for the air conditioning of a vehicle
interior as a function of incident solar radiation
as claimed in claim 1, characterized in that the
20 correction factor is constant below a first
threshold value of the sunlight steepness and
above a second threshold value of the sunlight
steepness, the constant above the second threshold
value being higher than the constant below the
25 first threshold value, and the correction factor
having a linear profile between the two threshold
values.

4. A method for the air conditioning of a vehicle
30 interior as a function of incident solar radiation
as claimed in claim 2, characterized in that the
correction factor is constant below a first
threshold value of the sunlight steepness and
above a second threshold value of the sunlight
35 steepness, the constant above the second threshold
value being higher than the constant below the
first threshold value, and the correction factor

having a linear profile between the two threshold values.

5. The method for the air conditioning of a vehicle interior as a function of incident solar radiation as claimed in claim 1, characterized in that, during the determination of the air conditioning capacity on the basis of the incident solar radiation, the blow-in temperature is lowered and the blower power is raised, and this raising/lowering is maintained or reduced by means of the correction factor.
6. The method for the air conditioning of a vehicle interior as a function of incident solar radiation as claimed in claim 1, characterized in that, during the determination of the air conditioning capacity on the basis of the incident solar radiation, the blow-in temperature is lowered or the blower power is raised, and this raising/lowering is maintained or reduced by means of the correction factor.
7. The method for the air conditioning of a vehicle interior as a function of incident solar radiation as claimed in claim 2, characterized in that, during the determination of the air conditioning capacity on the basis of the incident solar radiation, the blow-in temperature is lowered and the blower power is raised, and this raising/lowering is maintained or reduced by means of the correction factor.
8. The method for the air conditioning of a vehicle interior as a function of incident solar radiation as claimed in claim 2, characterized in that, during the determination of the air conditioning

capacity on the basis of the incident solar radiation, the blow-in temperature is lowered or the blower power is raised, and this raising/lowering is maintained or reduced by means of the correction factor.

9. The method for the air conditioning of a vehicle interior as a function of incident solar radiation as claimed in claim 3, characterized in that, during the determination of the air conditioning capacity on the basis of the incident solar radiation, the blow-in temperature is lowered and the blower power is raised, and this raising/lowering is maintained or reduced by means of the correction factor.

10. The method for the air conditioning of a vehicle interior as a function of incident solar radiation as claimed in claim 3, characterized in that, during the determination of the air conditioning capacity on the basis of the incident solar radiation, the blow-in temperature is lowered or the blower power is raised, and this raising/lowering is maintained or reduced by means of the correction factor.

11. The method for the air conditioning of a vehicle interior as a function of incident solar radiation as claimed in claim 4, characterized in that, during the determination of the air conditioning capacity on the basis of the incident solar radiation, the blow-in temperature is lowered and the blower power is raised, and this raising/lowering is maintained or reduced by means of the correction factor.

12. The method for the air conditioning of a vehicle

- interior as a function of incident solar radiation as claimed in claim 4, characterized in that, during the determination of the air conditioning capacity on the basis of the incident solar radiation, the blow-in temperature is lowered or the blower power is raised, and this raising/lowering is maintained or reduced by means of the correction factor.
- 10 13. The method for the air conditioning of a vehicle interior as a function of incident solar radiation as claimed in claim 1, characterized in that the selected multiplier is 50.
- 15 14. The method for the air conditioning of a vehicle interior as a function of incident solar radiation as claimed in claim 2, characterized in that the selected multiplier is 50.
- 20 15. The method for the air conditioning of a vehicle interior as a function of incident solar radiation as claimed in claim 3, characterized in that the selected multiplier is 50.
- 25 16. The method for the air conditioning of a vehicle interior as a function of incident solar radiation as claimed in claim 4, characterized in that the selected multiplier is 50.
- 30 17. The method for the air conditioning of a vehicle interior as a function of incident solar radiation as claimed in claim 5, characterized in that the selected multiplier is 50.
- 35 18. The method for the air conditioning of a vehicle interior as a function of incident solar radiation as claimed in claim 6, characterized in that the

selected multiplier is 50.

19. The method for the air conditioning of a vehicle interior as a function of incident solar radiation as claimed in claim 7, characterized in that the selected multiplier is 50.
20. The method for the air conditioning of a vehicle interior as a function of incident solar radiation as claimed in claim 8, characterized in that the selected multiplier is 50.